

Appl. No.: 10/538,389
Amdt. dated June 18, 2007
Reply to Office Action of January 17, 2007

REMARKS/ARGUMENTS

Reconsideration and allowance of the above identified application is requested in light of the above amendments and the following remarks.

The Present Invention

To briefly summarize, the claimed invention relates to a longwall support control for controlling the movements of longwall support units 1-18 in the longwall of a mine. In prior art longwall support control systems, a failure in a mining shield control device makes the entire system inoperative. However, the present invention advantageously permits operating the system despite such failure.

The invention as defined in the amended claims of the application comprises a plurality of longwall support units 1-18, a central control system 50, 51, and a plurality of mining shield control devices 34 connected to the support units and connected to the control system via two identical bus lines 58, 59.

Each mining shield control device 34 stores a unique code word and is programmed to be activated to carry out the respective shield functions only when the stored code word is received from the bus line. The second bus line can be used to re-transmit incoming signals which are not provided with a code word respectively allocated to a particular shield control device, to an adjacent shield control device.

The Claim Rejections Under 35 U.S.C. § 102(b)

In the Official Action, the Examiner rejected Claims 1, 2,

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and 4 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,146,271 to Ward et al. (the Ward et al. reference) or U.S. Patent No. 5,029,943 to Merriman (the Merriman reference).

The Ward reference discloses a mine roof support system having a remote control unit 22 and plurality of locally mounted units 20, each associated to one of the roof support units. See col. 5, lines 20-27. A multi-core cable 23, consisting of a plurality of individual cores 25 connects via cable sockets 26, 27 on each unit to the units 20 of neighboring roof support units and with the remote control 22. However, there is no teaching or suggestion that the units connect via a second bus line (parallel bus) to a central control system and to one another, or that the units are programmed such that signals that come in via one of the bus lines and which do not store a code word associated to the respectively called up unit, are re-transmitted to an adjacent unit, in the manner of the present invention.

The Merriman reference discloses a mining machine 11 traveling along a series of roof supports 16, note col. 3, lines 1-7. Information gathered on the mining machine is transmitted by transmitter 30 of the machine and receiver 32 on each of the roof supports 16, connected to the control box 27 on each roof support, note col. 4, lines 5-12. The control boxes are electrically connected to each other so that events on one support can be used to control an adjacent support, note col. 3, lines 65-68. As shown in Fig. 3, the control boxes 27 are connected to each other by one cable. Data received by one control box 27 is then passed along existing links to the face

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end control unit 28, note col. 4, lines 21-22. However, the Merriman reference is silent with respect to those links and thus does not teach or suggest how the cable fragments between two neighboring control boxes 27 are connected from entrance to exit of each of the control boxes 27. Moreover, the Merriman reference does not disclose anything analogous to a second or parallel bus line and the programming to permit functioning in the manner of the present invention.

The Claim Rejections Under 35 U.S.C. § 103(a)

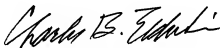
The Examiner also rejected Claims 1, 2, and 4 as being unpatentable over the '802 Kussel reference, the '842 Kussel reference, the '698 Kussel reference, or the Harris reference in view of the Hubner reference. In particular, the Examiner stated that the '802 Kussel reference, the '842 Kussel reference, the '698 Kussel reference, and the Harris reference "all disclose the invention substantially as claimed," but that "they all are silent about using an identifier to access the mining shield control device," which the Examiner states is taught by the Hubner reference. However, even assuming arguendo that the Examiner's contention is correct, an important aspect of the present invention is not disclosed or suggested, even when the cited references are considered collectively. In particular, none of the cited references teach a longwall support control for a plurality of control units having shield control devices, with the shield control devices being connected to a second bus line and being programmed to function in the manner of the present invention.

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Summary

For the reasons set forth above, it is respectfully submitted that the rejections of the independent Claim 1 under Sections 102 and 103 of the Patent Statute are legally untenable and should be withdrawn. Since the remaining claims depend from independent Claim 1, it is respectfully submitted that these claims are also in condition for allowance. Such action is solicited.

Respectfully submitted,



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